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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/784,025

02/20/2004

Ernst-Christian Koch

17312

1693

23389

7590

10/05/2006

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EXAMINER

GELLNER, JEFFREY L

ART UNIT

PAPER NUMBER

3643

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/784,025	KOCH, ERNST-CHRISTIAN	
	Examiner	Art Unit	
	Jeffrey L. Gellner	3643	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 6-8, 11 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9, 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5, 9, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 6-7, the text of “metal combined with fluorine in an exothermic reaction” is indefinite because it is unclear whether this reaction occurs continuously after the composition is produced or this reaction occurs upon detonation of the composition.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eaton et al. (Adv. Materials, 2000) in view of Forsberg et al. (US 5,407,500).

As to claims 1, 5, 9, and 10, Eaton discloses a pyrotechnic composition capable of producing IR-radiation comprising a carbocyclic cage molecule (octanitrocubane) as an oxidizing agent. Not disclosed is the carbocyclic cage molecule being fluorinated and a fuel of a

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halophilic metal, magnesium. Forsberg et al., however, discloses the use/substitution of fluoro with nitro groups on a ring molecule (col. 4 lines 50-58 with use of component CI) that is exothermic (col. 1 lines 14-20) and magnesium as a fuel (col. 34 lines 3-7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the composition of Eaton et al. by using fluoro groups instead of nitro groups and Mg as a fuel as disclosed by Forsberg et al. depending upon use of the composition, for example, when a more stable compound is needed (see Gilligan et al for the proposition that substitution of nitro groups with fluoro groups improves thermal stability (col. 3 lines 74-75).

As to claims 2-4 , the limitations of claim 1 are disclosed as described above. Not disclosed is the exact formula as given by the expressions disclosed in these claims. It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the composition of Eaton et al. as modified by Forsberg et al. to use these expressions for the composition depending upon use of the composition.

### ***Response to Arguments***

Applicant's arguments filed 19 July 2006 have been fully considered but they are not persuasive. Applicant's argument is that neither Eaton et al. nor Forsberg et al. teach or suggest a fluorinated spherical carbocyclic cage molecule that would generate IR radiation (Remarks pages 7-8).

Examiner considers Eaton et al. to disclose a carbocyclic cage molecule (octanitrocubane) that is spherical (Applicant discloses octafluorocubane to be spherical in the specification at page 7, line 15. Since both octanitrocubane and octafluorocubane are cubanes

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both are considered to be spherical). Forsberg et al. discloses that nitro and fluoro groups are interchangeable from col. 4 lines 50-58 (in at least the AI and CI components in that “hydrocarbyl” is defined as being, *inter alia*, “substituted hydrocarbyl groups” that include “halo” and “nitro” groups” (from col. 3, lines 51-55; col. 4, lines 5-14; and col. 4, lines 42-66). Forsberg et al. further discloses the use of Mg as a fuel with these substituted components.

The combination of the two references would be obvious to one of ordinary skill in the art depending upon the use of the composition. Gilligan et al. (US 3,850,978) discloses that, in an explosive composition, nitro groups are needed for explosive characteristics and fluoro groups improve thermal stability. Hence, substitution for one with the other would be obvious depending upon use of the composition.

Finally, the composition of Eaton et al. as modified by Forsberg et al. would produce IR radiation because it is well settled that compositions that are identical have the same properties (see MPEP 2112.01(II)).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey L. Gellner whose telephone number is 571.272.6887. The examiner can normally be reached on Monday-Friday, 8:30-4:00, alternate.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on 571.272.6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'J. Gellner', with a stylized flourish at the end.

Jeffrey L. Gellner  
Primary Examiner  
Art Unit 3643